CLAIMS

1. A tonometer for use in measuring intraocular pressure in a non-invasive manner, comprising:

(a) a frame;

(b) a strain gage mounted with respect to said frame for measuring a force;

(c) a linear variable displacement transducer mounted with respect to said frame, said linear variable displacement transducer communicating with an axially movable sensing tip for measuring a distance; and

(d) a processing unit in communication with said strain gage and said linear variable displacement transducer, said processing unit being programmed to (i) time-synchronize signals received from said strain gage and said linear variable displacement transducer, and (ii) identify a change in the relationship between time-synchronized measurements of said force and said distance;

wherein said change in the relationship between time-synchronized measurements of said force and said distance correlates with the intraocular pressure of a patient.

2. A tonometer according to claim 1, further comprising a strain gage stop mounted with respect to said frame and positioned adjacent said strain gage.

3. A tonometer according to claim 1, further comprising a linear variable displacement transducer stop mounted with respect to said frame and positioned adjacent said linear variable displacement transducer.

4. A tonometer according to claim 1, wherein said processing unit communicates with said strain gage and said linear variable displacement transducer by way of data communication wires.

5. A tonometer according to claim 1, wherein said frame is substantially L-shaped.

6. A tonometer according to claim 1, wherein said processing unit provides signal amplification.

7. A tonometer according to claim 1, wherein said processing unit provides low pass signal filtering.

8. A tonometer according to claim 1, wherein said processing unit provides signal rectification.

9. A tonometer according to claim 1, wherein said processing unit includes a digital acquisition card that feeds signals to software suitable to time-synchronize the signals received from the strain gage and the linear variable displacement transducer and to identify an inflection or change in the relationship between the time-synchronized force and distance measurements.

10. A tonometer according to claim 9, wherein said software includes spreadsheet functionality.

11. A tonometer according to claim 1, wherein said sensing tip includes a substantially flat circular end for contacting an eyelid of a patient.

12. A tonometer according to claim 1, wherein said strain gage is a micro-electromechanical system.

13. A tonometer according to claim 1, wherein said linear variable displacement transducer is a micro-electromechanical system.

14. A tonometer according to claim 1, wherein said processing unit is embodied in an integrated circuit that is mounted with respect to said frame.

15. A tonometer according to claim 1, further comprising an output screen that includes LED emitters for displaying the intraocular pressure of a patient.